



Ontario

Ministry
of the
Environment

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Publication Code:

WFS10

FACTS

FACTS ABOUT WATER POLLUTION

AN INTRODUCTION TO POLLUTION AND ITS CONTROL IN THE GREAT LAKES

A hundred thousand years ago, the huge Laurentide Ice Sheet began its outward push from northeastern Canada. This massive glacier, five to ten thousand feet thick, began to leave its mark on the surface of the earth. Yielding to the enormous weight, the earth's crust sank beneath its load.

As the Laurentide Ice Sheet melted some 10 to 15 thousand years ago it left behind what is considered the world's largest fresh water reservoir -- THE GREAT LAKES.

Today, these lakes play a key role in the economy of this continent supporting more than 35 million people around its shores. In Canada, about one-third of our entire population is centered around the Great Lakes.

From the time they were formed, the lakes began to fill with sediment from inflowing streams. This sediment provided the nourishment for the growth of aquatic plants. These plants in turn trap additional sediment. Many thousands of years from now as this natural cycle continues, and as the earth's crust slowly continues to rebound from the pressure of the ice age, the Great Lakes, like all of the world's lakes, will ultimately disappear.

Unfortunately, man has accelerated this natural action. Since the arrival of the first settlers and the growth of population around the Great Lakes, the input of phosphorus and other nutrients into the lakes has increased with the most pronounced increase occurring over the past few decades. These chemicals are contained primarily in municipal sewage, industrial wastes, and in farm fertilizers. On farms, such chemicals are used to grow abundant crops. In the lakes, they have the similar effect of increasing aquatic growth.

Recognizing the need for immediate action to control the deterioration of the Great Lakes, Ontario signed an agreement with the Government of Canada -- The Canada-Ontario Agreement on Lower Great Lakes Water Quality (1971). Under this Agreement, a cost-sharing plan between the federal government and Ontario made finances available to municipalities for the construction of phosphorus removal facilities to two hundred affected sewage treatment plants in southern Ontario.

In 1972, the Canada-United States Agreement on Great Lakes Water Quality was signed to improve water quality in the Great Lakes and to protect the lakes from further pollution in the future. Under this Agreement, the States bordering the Great Lakes were brought into the plan of action for installing phosphorus removal facilities in sewage treatment plants.

Phosphorus removal equipment has been and still is a major weapon in the fight against environmental deterioration of the Great Lakes. Ontario has spent approximately \$480 million on municipal sewage treatment facilities with a further \$400 million committed for further projects. This equipment has been installed in all treatment plants in southern Ontario which provide significant discharges to the Great Lakes.

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Industry has also played a substantial role in this battle. The Ontario Ministry of the Environment has worked closely with the industrial sector in planning abatement programs for pollution control. To date, in excess of \$250 million have been spent by industry for abatement programs for pollution control and every major industry in the Province is engaged in these programs.

As a result of these and other actions, the deterioration of the Great Lakes caused by excessive nutrient loading has been curbed and the trend reversed.

There have been some delays by the United States in meeting the deadlines for phosphorus removal. However, funds authorized for municipal treatment plants have been released and the U.S. Environmental Protection Agency has placed high priority in meeting the water quality objectives set out under the Canada-U.S. Agreement.

However, the battle has only just begun. In the last few years, serious toxic contaminants have surfaced in the Great Lakes. For example, DDT, Mercury, Asbestos, PCBs and Mirex. Effective technological processes have now been developed to detect, measure and assess the impact of these contaminants.

In many cases, the major sources of these contaminants have been isolated and abatement programs developed to stop further contamination. In addition, laws have been developed both at the federal and provincial levels to control the entry of these toxic substances to our environment.

In late 1975, the Government of Canada passed The Environmental Contaminants Act and on April 1, 1976, it was proclaimed by the Governor General of Canada. The intent of this legislation is to regulate the introduction, use, distribution and processing of materials in quantities greater than 225 kg. per year. Under this Act, an Environmental Contaminants Board of Review will investigate any substances suspected of constituting a danger to human health or the environment.

In Ontario, similar action has been taken with the passing of the new Environmental Assessment Act. Under this Act, new developments which might be significant to our environment will have to be assessed at the conceptual stage. In this assessment, all effects on our natural, social, economic, cultural and physical environment will be considered.

As can be seen from these two pieces of legislation, the primary objective is prevention of future contamination. But future strategies also include co-ordinated research and pollution control activity between Canada and the U.S. Much of this is co-ordinated through the International Joint Commission.

Founded in 1909, under the Boundary Waters Treaty, the International Joint Commission plays an important role in co-ordinating the efforts of the two countries. Data obtained from research is accumulated by the Commission which in turn assesses the need for remedial action and presents its recommendations to both governments.

This co-ordination of planning and the implementation of recommendations is of utmost importance to the prevention of further pollution of the Great Lakes caused by continuing population growth, resource development and increasing use of water.

For Further Information:

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